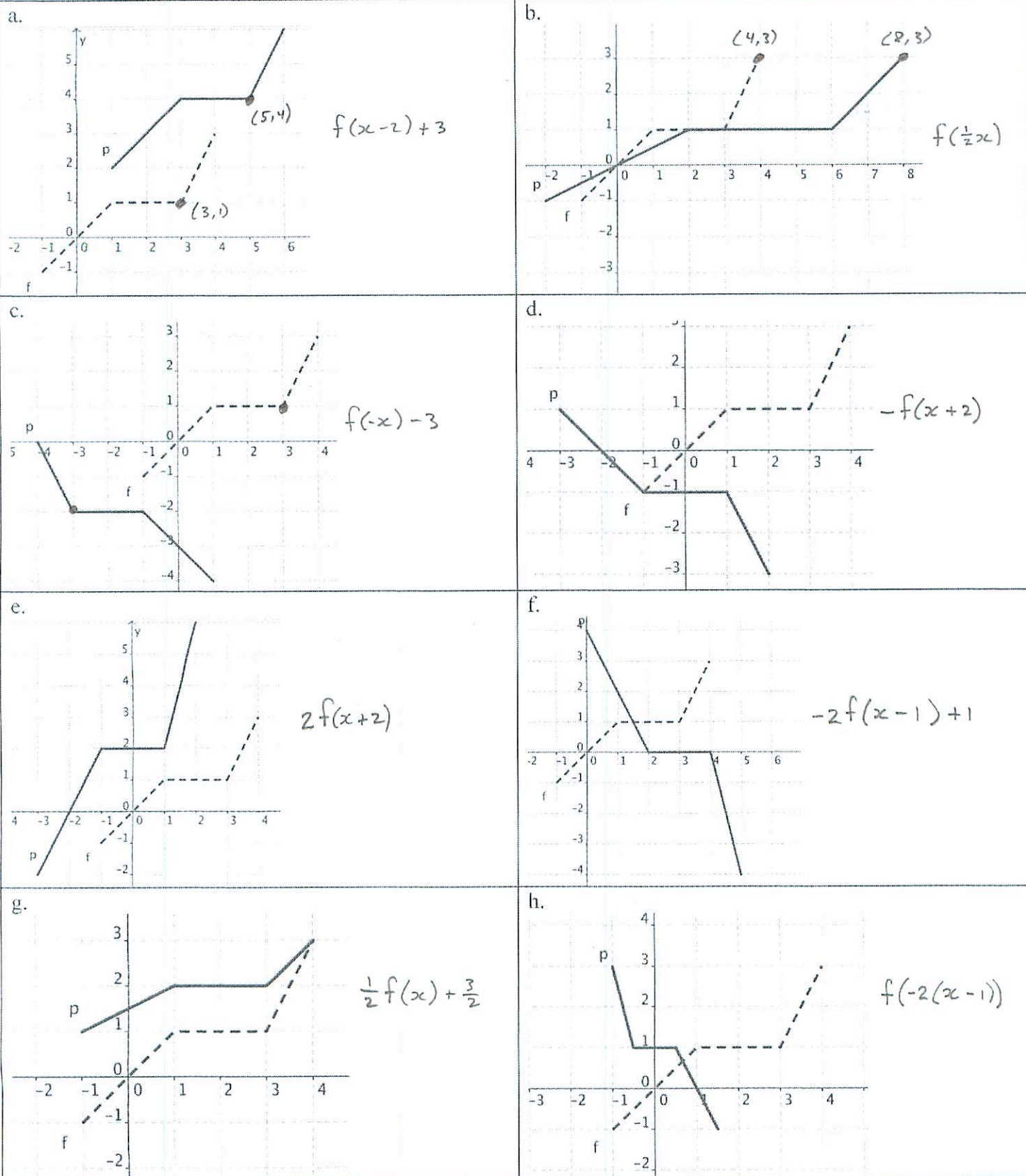
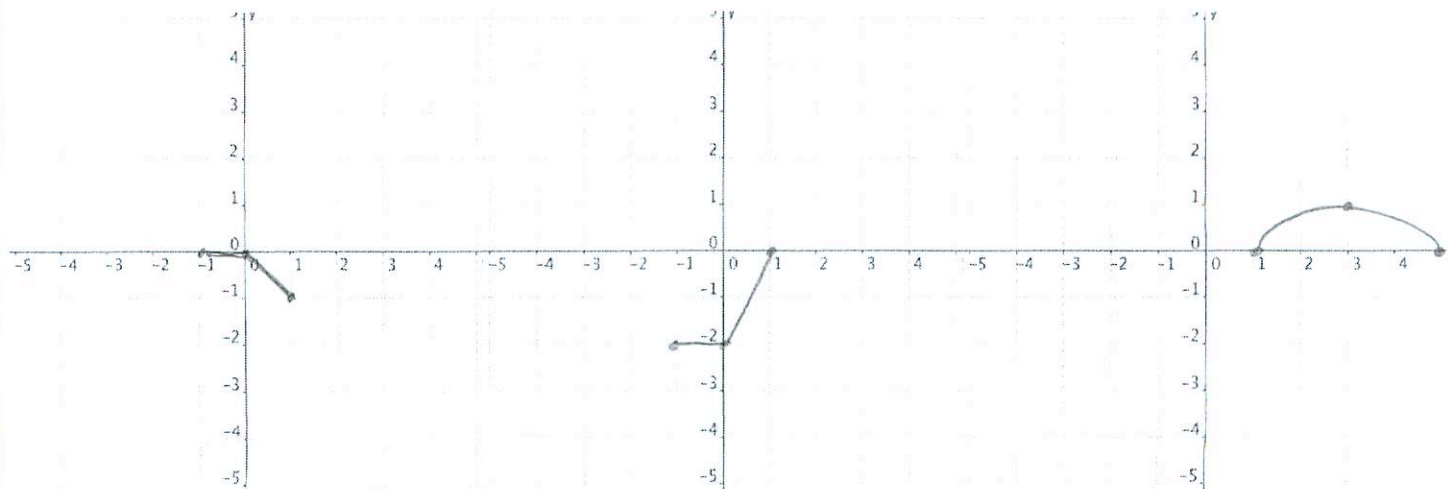


Transformations

1. For each of the following graphs, the dashed graph is the function $y = f(x)$ and the solid graph is the function $y = p(x)$. Rewrite $p(x)$ in terms of $f(x)$ (e.g. $p(x) = -3f(2(x-1)) + 4$).



2. Do page 67/35, 37, 45.



3. Do page 68/64 and 66. To check these answers on Geogebra, create a quadratic function f that passes through the points $(2, 5)$ and $(0, 3)$ and then graph both f and the transformed function on the same axes.

64 $y = f(x) + 2$

Two units up:

$(2, 5) \rightarrow (2, 7)$

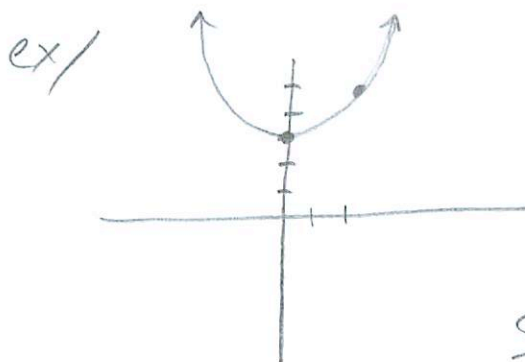
$(0, 3) \rightarrow (0, 5)$

66 $y = 3 + 2f(x-2)$

2 units R, vertical stretch $\times 2$, 3 units U

$(2, 5) \rightarrow (4, 5) \rightarrow (4, 10) \rightarrow (4, 13)$

$(0, 3) \rightarrow (2, 3) \rightarrow (2, 6) \rightarrow (2, 9)$



Dilate $y = x^2$ by $\frac{1}{2}$ vertically
Shift 3 U up.

$$f(x) = \frac{1}{2}x^2 + 3$$

So, $f(x) + 2 = \frac{1}{2}x^2 + 5$

and

$$3 + 2f(x-2) = 3 + 2\left(\frac{1}{2}(x-2)^2 + 3\right)$$

$$= 3 + (x-2)^2 + 6$$

$$= (x-2)^2 + 9$$